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L1	1	"6905854".pn.	USPAT	OR	OFF	2005/09/18 16:18
L2	1	"6699699".pn.	USPAT	OR	OFF	2005/09/18 17:00
L3	3	streptomyces near10 (penicillin near2 expandase)	USPAT	OR	OFF	2005/09/18 17:03
L4	14	streptomyces near10 (deacetoxycephalosporin near2 (synthase or synthetase))	USPAT	OR	OFF	2005/09/18 17:02
L5	15	L3 or L4	USPAT	OR	OFF	2005/09/18 17:02
L6	12	I5 and (variant or mutant or mutated or mutation or mutating)	USPAT	OR	OFF	2005/09/18 17:03
L7	8173	(penicillin near2 expandase) or (deacetoxycephalosporin near2 synthase or synthetase)	USPAT	OR	OFF	2005/09/18 17:04
L8	245	I7 near8 (variant or mutant or mutated or mutation or mutating)	USPAT	OR	OFF	2005/09/18 17:05
L9	15	I3 or I4	USPAT	OR	OFF	2005/09/18 17:05
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=> s streptomyces (8A) (deacetoxycephalosporin (2A) (synthase or synthetase))

L1 114 STREPTOMYCES (8A) (DEACETOXYCEPHALOSPORIN (2A)
(SYNTHASE OR
SYNTHETASE))

=> s streptomyces (8A) (penicillin (2A) expandase)

L2 9 STREPTOMYCES (8A) (PENICILLIN (2A) EXPANDASE)

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A complete library of amino acid alterations at N304 in *Streptomyces clavuligerus* deacetoxycephalosporin C synthase elucidates the basis for enhanced penicillin analogue conversion. *Appl Environ Microbiol.* 2004 Jan;70(1):607-9. PMID: 14711695 [PubMed - indexed for MEDLINE]

3: [Chin HS, Sim TS.](#)

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Mutation of N304 to leucine in *Streptomyces clavuligerus* deacetoxycephalosporin C synthase creates an enzyme with increased penicillin analogue conversion. *Biochem Biophys Res Commun.* 2001 Sep 21;287(2):507-13. PMID: 11554757 [PubMed - indexed for MEDLINE]

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 Mutational evidence supporting the involvement of tripartite residues His183, Asp185, and His243 in *Streptomyces clavuligerus* deacetoxycephalosporin C synthase for catalysis.
Biosci Biotechnol Biochem. 2000 Apr;64(4):828-32.
PMID: 10830499 [PubMed - indexed for MEDLINE]

7: [Lee HJ, Lloyd MD, Harlos K, Schofield CJ.](#) [Related Articles](#), [Links](#)

 The effect of cysteine mutations on recombinant deacetoxycephalosporin C synthase from *S. clavuligerus*.
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J Mol Biol. 2004 Oct 8;343(1):157-71.
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The kinetic properties of various R258 mutants of deacetoxycephalosporin C synthase.
Eur J Biochem. 2003 Mar;270(6):1301-7.
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C-terminus modification of Streptomyces clavuligerus deacetoxycephalosporin C synthase improves catalysis with an expanded substrate specificity.
Biochem Biophys Res Commun. 2002 Jul 5;295(1):55-61.
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-  The role of arginine residues in substrate binding and catalysis by deacetoxycephalosporin C synthase.
Eur J Biochem. 2002 Jun;269(11):2735-9.
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-  Multiple isomorphous replacement on merohedral twins: structure determination of deacetoxycephalosporin C synthase.
Acta Crystallogr D Biol Crystallogr. 2001 Dec;57(Pt 12):1776-85. Epub 2001 Nov 21.
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- 7: Lee HJ, Lloyd MD, Harlos K, Clifton IJ, Baldwin JE, Schofield CJ. Related Articles, Links
-  Kinetic and crystallographic studies on deacetoxycephalosporin C synthase (DAOCS).
J Mol Biol. 2001 May 18;308(5):937-48.
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-  Alteration of the co-substrate selectivity of deacetoxycephalosporin C synthase. The role of arginine 258.
J Biol Chem. 2001 May 25;276(21):18290-5. Epub 2001 Feb 21.
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- 10: Lloyd MD, Lee HJ, Harlos K, Zhang ZH, Baldwin JE, Schofield CJ, Charnock JM, Garner CD, Hara T, Terwisscha van Scheltinga AC, Valegard K, Viklund JA, Hajdu J, Andersson I, Danielsson A, Bhikhabhai R. Related Articles, Links
-  Studies on the active site of deacetoxycephalosporin C synthase.
J Mol Biol. 1999 Apr 16;287(5):943-60.
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Hara T, Ramaswamy S, Perrakis A,
Thompson A, Lee HJ, Baldwin JE, Schofield
CJ, Hajdu J, Andersson I.

Structure of a cephalosporin synthase.
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Penicillium chrysogenum strains expressing deacetoxycephalosporin
C synthase activity.
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